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Baker & Botts LLP 2001 Ross Avenue Dallas, TX 75201-2980			LI, SHI K	
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			2633	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/544,662

Applicant(s)

KAUFFELDT ET AL.

Examiner

Shi K. Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,11,12,15,16,18 and 21-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 1-5,12,15,16,18 and 21-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. Claims 4, 18, 27-31 and 35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 4 depends on claim 3, which in turn depends on claim 1. Claim 1, as currently amended, corresponds to FIG. 1 wherein the drop terminals are not coupled to switching unit. Claim 3 recites the limitation "each of said one or more drop terminals is coupled to said third output of a respective said switching unit". This is not taught by the specification as originally filed and is considered as new matter. Similarly, claim 16, as currently amended, corresponds to FIG. 1 wherein the drop terminals are not coupled to switching unit. Claim 18 recites the limitation "each of said one or more drop terminals of each multiplexer unit is coupled to said third output of a respective said switching unit of that multiplexing unit". This is not taught by the specification as originally filed and is considered as new matter.

Claim 27 depends on claim 23 which corresponds to FIG. 1 wherein the switching units do not have a third input. Claim 27 recites the limitation "said switching unit includes a third input" in line 2 of the claim. This is not taught by the specification as originally filed and is considered as new matter. Similarly, claim 30 recites the limitation "wherein each said switching unit includes a third input" in line 2 of the claim. This is not taught by the specification as originally filed and is considered as new matter. Claim 35 recites the limitation "wherein each

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said switching unit in each said multiplexing unit includes a third input" in line 2 of the claim.

This is not taught by the specification as originally filed and is considered as new matter.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 18 and 27-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 18 recites the limitation "said third output of a respective said switching unit" in lines 4 of the claim. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 27 recites the limitation "said add terminal" in lines 6 of the claim. There is insufficient antecedent basis for this limitation in the claim. Note that claim 23 recites "one or more add terminals" in line 26 of the claim.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-4, 12, 16, 21-23, 25, 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. (U.S. Patent 6,285,479 B1) in view of Ester et al. (U.S. Patent 6,163,527).

Regarding claims 1 and 21, Okazaki et al. teaches in FIG.11 an add/drop multiplexer node. FIG. 11 comprises an input terminal connected to drop coupler 201, an output terminal

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connected to add coupler 206, a demultiplexer 202 and multiplexer 205. The drop coupler 201 forwards a first copy of input signal to demultiplexer and a second copy to dropping means 210 with a plurality of receivers (drop terminals). The difference between Okazaki et al. and the claimed invention are (a) Okazaki et al. does not teach protection terminals and (b) Okazaki et al. does not teach a plurality of switching units for switching between working (normal) terminals and protection terminals. Ester et al. teaches in col. 4, lines 55-61 and FIG. 4 to protect individual channel independent of ring and span protection. For example, an individual channel can be switched from west working to east working, east protection or west protection. One of ordinary skill in the art would have been motivated to combine the teaching of Ester et al. with the ADM of Okazaki et al. because some failure may only affect certain wavelength channels. In such case, an individual channel switching is more effective than a span or ring switching. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use switches between the demultiplexer and multiplexer for individual wavelength protection switching, as taught by Ester et al., in the ADM of Okazaki et al. because an individual channel switching is more effective for failures that only affect individual wavelength channels.

Regarding claim 3, the switching unit of FIG. 7 of Ester et al. includes a third output to WEST TRIBUTARY.

Regarding claim 4, FIG. 7 of Ester includes a plurality of drop terminals.

Regarding claim 12, Okazaki et al. teaches in FIG. 11 a plurality of filters 212.

Regarding claim 16, the structure of each multiplexing unit of the claim is similar to that of claim 1 and has been discussed above. In addition, Okazaki et al. suggests in FIG. 10 and Ester et al. suggests in FIG. 1 and page 1, lines 6-9 that a plurality of such ADMs can be

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connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

Regarding claims 22 and 23, Okazaki et al. teaches in FIG. 11 add coupler 206, a plurality modulators 227 and a plurality of filters 226 for adding one or more signals to a multiplexed signal generated by multiplexer 205.

Regarding claim 25, the switching unit of FIG. 7 of Ester et al. includes a third output to WEST TRIBUTARY.

Regarding claim 32, Okazaki et al. teaches in FIG. 11 drop coupler 201 coupled between optical input and demultiplexer 202 and a plurality of receivers (drop terminals) 213.

Regarding claim 34, the structure of each multiplexing unit of the claim is similar to that of claim 23 and has been discussed above. In addition, Okazaki et al. suggests in FIG. 10 and Thompson suggests in FIG. 1 that a plurality of such ADMs can be connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

8. Claims 1, 3-4, 12, 16, 18, 21-23, 27, 30-32 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. (U.S. Patent 6,285,479 B1) in view of Thompson (U.S. Patent 6,249,510 B1).

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Regarding claims 1 and 21, Okazaki et al. teaches in FIG. 11 an add/drop multiplexer (ADM) node. FIG. 11 comprises an input terminal connected to drop coupler 201, an output terminal connected to add coupler 206, a demultiplexer 202 and multiplexer 205. The drop coupler 201 forwards a first copy of input signal to demultiplexer and a second copy to dropping means 210 with a plurality of receivers 213 (drop terminals). The difference between Okazaki et al. and the claimed invention are (a) Okazaki et al. does not teach protection terminals and (b) Okazaki et al. does not teach a plurality of switching units for switching between working (normal) terminals and protection terminals. Thompson teaches in FIG. 2 a protection terminals and a plurality of switches for switching between working and protection terminals. One of ordinary skill in the art would have been motivated to combine the teaching of Thompson with the ADM of Okazaki et al. because some failure may only affect certain wavelength channels. In such case, an individual channel switching is more effective than a span or ring switching. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use switches between the demultiplexer and multiplexer for individual wavelength protection switching, as taught by Thompson, in the ADM of Okazaki et al. because an individual channel switching is more effective for failures that only affect individual wavelength channels.

Regarding claim 3, the switching unit of Thompson includes a third output 60-2,

Regarding claim 4, FIG. 2 of Thompson includes a plurality of drop terminals  $\lambda_1$  to  $\lambda_N$ .

Regarding claim 12, Okazaki et al. teaches in FIG. 11 a plurality of filters 212.

Regarding claim 16, the structure of each multiplexing unit of the claim is similar to that of claim 1 and has been discussed above. In addition, Okazaki et al. suggests in FIG. 10 and Thompson suggests in FIG. 1 that a plurality of such ADMs can be connected in a ring

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configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.

Regarding claim 18, Thompson teaches in FIG. 2 a third output 60-2 of the switching unit.

Regarding claims 22 and 23, Okazaki et al. teaches in FIG. 11 add coupler 206, a plurality modulators 227 and a plurality of filters 226 for adding one or more signals to a multiplexed signal generated by multiplexer 205.

Regarding claim 27, Thompson teaches in FIG. 2 a third input 60-1 of the switching unit.

Regarding claims 30-31, Thompson teaches in FIG. 2 a third output 60-2 and third input 60-1 of the switching unit for connecting to drop terminal and add terminal.

Regarding claim 32, Okazaki et al. teaches in FIG. 11 drop coupler 201 coupled between optical input and demultiplexer 202 and a plurality of receivers (drop terminals) 213.

Regarding claim 34, the structure of each multiplexing unit of the claim is similar to that of claim 23 and has been discussed above. In addition, Okazaki et al. suggests in FIG. 10 and Thompson suggests in FIG. 1 that a plurality of such ADMs can be connected in a ring configuration. That is, the protection output terminals of a multiplexing unit of a first ADM are each coupled to a respective protection input terminal of a multiplexing unit of a second ADM, and the protection output terminals of the second ADM are each coupled to a respective protection input terminal of the first ADM.



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Regarding claim 35, Thompson teaches in FIG. 2 a third output 60-2 and third input 60-1 of the switching unit for connecting to drop terminal and add terminal.

9. Claims 2, 5, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. and Thompson as applied to claims 1, 3-4, 12, 16, 18, 21-23, 27, 30-32 and 34-35 above, and further in view of Meli (U.S. Patent 5,956,319).

Okazaki et al. and Thompson have been discussed above in regard to claims 1, 3-4, 12, 16, 18, 21-23, 27, 30-32 and 34-35. The difference between Okazaki et al. and Thompson and the claimed invention is the structure of the switching unit. The channel switching unit of the modified ADM of Okazaki et al. and Thompson has three inputs and three outputs for the purpose of add/drop and protection of the channel. It consists of four 1x3 switches and two 1x2 switches. Meli teaches in FIG. 2 a switching unit, consisting of five 2x2 switches, for add/drop and protection, which is equivalent to the switching unit of Thompson. The first and second inputs of switch 22 of FIG. 2 of Meli are coupled to the working and protection inputs, and its first and second outputs are coupled to the working output and protection output. One of ordinary skill in the art would have been motivated to combine the teaching of Meli with the modified ADM of Okazaki et al. and Thompson because the switching unit of Meli has less number of switches and uses one kind of switches. This simplifies the design, manufacturing and maintenance of the switching unit. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the switching unit in the modified ADM of Okazaki et al. and Thompson with the switching unit of Meli because it has less number of switches and uses one kind of switches, and therefore is simpler in design and easier to manufacture and maintain.

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10. Claims 15, 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki et al. and Thompson as applied to claims 1, 3-4, 12, 16, 18, 21-23, 27, 30-32 and 34-35 above, and further in view of Cao (U.S. Patent 6,337,755 B1) and Arecco (U.S. Patent 6,400,476 B1).

Okazaki et al. and Thompson have been discussed above in regard to claims 1, 3-4, 12, 16, 18, 21-23, 27, 30-32 and 34-35. The difference between Okazaki et al. and Thompson and the claimed invention is that Okazaki et al. and Thompson do not include regenerators and transponders in the modified ADM. Cao teaches in FIG. 1 the use of regenerators to reduce the noise accumulated in the transmission system. One of ordinary skill in the art would have been motivated to include the teaching of Cao in the modified ADM of Okazaki et al. and Thompson because the regenerators reshape the digital signal and allow for transmission of data over long distance. Arecco teaches in FIG. 2 the use of transponders to convert the optical signal from the transmitters to an appropriate wavelength for combining with the other channels of the WDM system. One of ordinary skill in the art would have been motivated to include the teaching of Arecco in the modified ADM of Okazaki et al. and Thompson because a transponder can bridge incompatible facilities. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include regenerators, as taught by Cao, and transponders, as taught by Arecco, in the modified ADM of Okazaki et al. and Thompson because regenerators reduce transmission noise and transponders allow the interconnection of incompatible facilities.

***Allowable Subject Matter***

11. Claim 11 is allowed.

***Response to Arguments***

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12. Applicant's arguments filed 21 September 2004 have been fully considered but they are not persuasive.

The Applicant argues that there is no suggestion to combine the references. The Examiner disagrees. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the need to protect individual channels in addition to fiber protection is knowledge generally available to one of ordinary skill in the art and is well documented in literature. For example, Manchester et al. (J. Manchester et al., "The Evolution of Transport Network Survivability", IEEE Communication Magazine, August 1999) teaches in page 49, right col., last two paragraphs that channel protection is needed to protect against isolated optoelectronic failures that will affect only a single OCh, and concludes, "This implies the need for a protection architecture that performs OCh-level switching based on OCh-level indications, *independently for each optical channel on the ring.*" Okazaki et al. only teaches fiber protection while Ester et al. teaches protection on individual channels, the combination of Okazaki et al. and Ester et al. fulfils the need to protect and switch individual channels, independent of other channels, when a failure only affects individual channels. Therefore, the combining of Okazaki et al. and Ester et al. is well motivated and proper.

### ***Conclusion***

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13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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skl

1 December 2004

*m. R. Sedighian*  
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**PRIMARY EXAMINER**